



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,322	11/14/2001	John R. Webster	84561	6882
20736	7590	04/26/2004	EXAMINER	
MANELLI DENISON & SELTER 2000 M STREET NW SUITE 700 WASHINGTON, DC 20036-3307			KYLE, MICHAEL J	
			ART UNIT	PAPER NUMBER
			3676	

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,322

Applicant(s)

WEBSTER, JOHN R.

Examiner

Michael J Kyle

Art Unit

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 16-27 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 23, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 3676

DETAILED ACTION

Election/Restrictions

1. Claims 16, 18-22, and 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7 (filed March 12, 2003). Examiner notes these claims are currently listed as “original”. They should be listed as “withdrawn”.
2. Applicant disagreed with examiner’s assertion that claims 17 and 24 recite limitations that are not included in the elected species, shown in figure 2. Examiner notes that claim 17 depends from non-elected claim 16. Additionally, the feature of “reduced area portions” recited in claim 17, is not shown in figure 2. The “reduced area portions” are features of the species shown in figures 3 and 4. Examiner cites page 9, lines 3-10 of the specification of the instant application, which describes that the “reduced area portions” are labeled as “c” and “d”. The feature depicted by the reference characters is not present in the elected species of figure 2.
3. With respect to claim 24, examiner agrees that a yoke is depicted in the elected species shown in figure 2. However, a yoke being supported by one or more springs, as recited in claim 24, is not shown in figure 2. A yoke supported by a spring is only shown in the non-elected species of figures 3, 7, 8, and 10.
4. For the reasons discussed above, claims 17 and 24 are also considered withdrawn, and will not be considered in this Office Action.

Specification

Art Unit: 3676

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The “first chamber” and “second chamber” recited in claim 1 are not provided for in the specification. This terminology must be provided in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Albers et al (“Albers”, U.S. Patent No. 4,434,987).

8. Albers discloses a seal for providing sealing between at least two separate and differing pressure zones and between a rotating structure (30) and non-rotating structures (4), comprising first (20) and second (3) sealing means, the first sealing means comprising first and second seal lands (20a, 20b) positioned either side of a rotating seal member (2), the seal lands being connected together via connecting means (20c, 21), the connecting means being movably mounted on the non-rotating structure and arranged to be movable so as to accommodate relative movement of the rotating and non-rotating structures, the second seal means (3, column , lines 35-38) being arranged and positioned to provide a seal between the non-rotating structure and the first seal land (20a) positioned in a lower pressure zone such that the pressure around this seal land is controlled. A portion of the connecting means (21), the first seal land (20a), and the non

Art Unit: 3676

rotating structure (4) define a first chamber (open area to the left of 20a in the figure) permanently connected to a pressure zone. The connecting means (20c, 21) and the first (20a) and second (20b) lands form a second chamber (around 2). The seal lands and at least a portion of the connecting means are imperforate, such that the first chamber is isolated from the second chamber.

9. With respect to claim 23, Albers discloses the connecting means to comprise a yoke.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2, 3, 6, 7, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albers in view of Whitford (U.S. Patent No. 5,064,205). Albers recites all of the limitations of claim 1, but does not disclose the seal lands to comprise two opposing magnets arranged to repel one another or that the rotating seal member comprises a rotating sealing disc of a conducting material.

12. Whitford teaches seal lands (5, 6, 7, 8) to comprise two opposing magnets arranged to repel one another and a rotating seal member comprises a rotating sealing disc (2) of a conducting material in order to closely control and maintain a small clearance around the complete circumference of the rotating sealing disc. By leaving a clearance, wear of the parts is decreased and service life is increased. Additionally, Whitford states that including the opposing

Art Unit: 3676

magnets eliminates the need for sealing fluid pumping means and exhaust vents (column 1, lines 53-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Albers as taught by Whitford in order to control and maintain a small clearance around the circumference of the rotating sealing disc, thereby reducing wear, and increasing service life. The modification is also advantageous because it eliminates the need for sealing fluid pumping means and exhaust vents. The combination would result in the spring biased cylindrically shaped electromagnets of Whitford being disposed in the first and second sealing lands (20a, 20b) of Albers.

13. With respect to claim 3, Albers discloses that the sealing lands are rings ("non-rotating seal ring", abstract).

14. With respect to claim 7, Albers discloses the rotating sealing disc (2) is located in an intermediate pressure zone.

15. With respect to claims 26 and 27, Albers discloses the rotating sealing member (2) to comprise a rotating sealing fin (the sealing member is the sealing fin) attached to a rotor (30) of a machine. The non rotating structure (4) comprises an adjacent static structure the machine. Albers does not disclose if specifically disclose if the machine rotor (30) is the rotor of a gas turbine engine, or a compressor rotor.

16. Whitford teaches the use of seal similar to Albers, in that first and second seal lands provide a controlled gap around a rotating sealing member. The seal of Whitford may be used in a gas turbine engine or a compressor (column 2, lines 5-6). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use the seal of Albers in a gas turbine engine or a compressor, as taught by Whitford, because Whitford shows it

Art Unit: 3676

is known to use such seals in these applications. Using a seal of the type disclosed by Albers and Whitford, where a controlled gap is provided around a rotating element, is advantageous because it minimizes leakage, wear, complexity, and cost (column 2, lines 23-28, of Whitford).

17. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albers in view of Whitford as applied to claim 3 above, and further in view of Tong (U.S. Patent No. 6,431,550). Neither Albers nor Whitford discloses the magnetic rings comprise segmented rings, or that there are seals provided between the segments of the magnetic rings.

18. Tong teaches a segmented sealing ring to provide for thermal expansion and contraction of the ring and a seal (52) provided between the segments in order to minimize leakage through the gaps between the rings. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the magnetic rings of Whitford and Albers as taught by Tong in order to provide for thermal expansion and contraction of the rings and to minimize leakage through the gaps between the ring segments.

Response to Arguments

19. Examiner has addressed applicant's arguments with respect to the omissions of claims 17 and 24 from the examination in paragraphs 2-4 of this Office Action above.

20. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Claim 1 is now rejected under 102(b) as being anticipated by Albers, as discussed above. The new grounds of rejection were necessitated by the added

Art Unit: 3676

limitations to claim 1 of a “first chamber” and a “second chamber” and the structure of each respective chamber, in the amended claims filed on December 30, 2003.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

22. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Kyle whose telephone number is 703-305-3614. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 703-308-2978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3676

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mk



Heather Shackelford
Supervisory Patent Examiner
Technology Center 3600